

What Is Claimed Is:

Sub A

1. A device for testing a material that changes shape when at least one of an electric field and a magnetic field is applied, comprising:
a generator for generating at least one of the electric field and the magnetic field; and
at least one thermal sensor for detecting a change in temperature of the material.

2. The device according to claim 1, wherein:
the material includes a piezoactive material.

3. The device according to claim 1, wherein:
the at least one thermal sensor includes a radiation detector for detecting electromagnetic radiation.

4. The device according to claim 1, wherein:
the at least one thermal sensor has a local resolution.

Sub A2

5. The device according to claim 1, further comprising:
an imaging unit.

6. The device according to claim 1, further comprising:
a unit for varying at least one of the electric field and the magnetic field.

7. The device according to claim 1, further comprising:
a unit for periodically varying at least one of the electric field and the magnetic field.

8. The device according to claim 1, wherein:
the material is arranged on a substrate.

9. The device according to claim 8, further comprising:

an arrangement for performing a temperature control of the substrate.

10. The device according to claim 1, wherein:

an electric contacting is arranged on the material.

11. ~~The device according to claim 1, further comprising:~~

~~a detection unit for detecting a portion of a heating of the material attributed to an electric current.~~

12. The device according to claim 11, further comprising:

an analyzer unit for compensating a temperature increase detected by the at least one thermal sensor, in the material, with the portion of the heating of the material attributed to the electric current.

13. The device according to claim 8, wherein:

at least two different test areas are provided on the substrate, the at least two different test areas including different materials.

14. The device according to claim 8, wherein:

a plurality of different test areas are arranged in a grid pattern on the substrate.

15. ~~The device according to claim 1, further comprising:~~

~~a measurement unit for measuring a change in a shape of a test object.~~

16. ~~The device according to claim 1, further comprising:~~

~~an optical measurement unit for measuring a change in at least one of a shape and a length.~~